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|-----------------|-------------|----------------------|---------------------|
| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
| 08/962,362      | 10/31/97    | KAMBE                | N 08810/008001      |

MM12/0714

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EXAMINER

DAY, M

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
| 2879     | 9            |

DATE MAILED: 07/14/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

## Office Action Summary

|                 |                 |
|-----------------|-----------------|
| Application No. | Applicant(s)    |
| 08/962,362      | N. Kanbe et al. |
| Examiner        | Group Art Unit  |
| M. Day          | 2879            |

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication .
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

### Status

- Responsive to communication(s) filed on 6/24/99
- This action is FINAL.
- Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 1 1; 453 O.G. 213.

### Disposition of Claims

- Claim(s) 1-6 & 20-31 is/are pending in the application.
- Of the above claim(s) 31 is/are withdrawn from consideration.
- Claim(s) \_\_\_\_\_ is/are allowed.
- Claim(s) 1-6 & 20-30 is/are rejected.
- Claim(s) \_\_\_\_\_ is/are objected to.
- Claim(s) \_\_\_\_\_ are subject to restriction or election requirement.

### Application Papers

- See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- The proposed drawing correction, filed on \_\_\_\_\_ is  approved  disapproved.
- The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- The specification is objected to by the Examiner.
- The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. § 119 (a)-(d)

- Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- All  Some\*  None of the CERTIFIED copies of the priority documents have been received.
- received in Application No. (Series Code/Serial Number) \_\_\_\_\_.
- received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_.

### Attachment(s)

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Information Disclosure Statement(s), PTO-1449, Paper No(s). <u>7</u> | <input type="checkbox"/> Interview Summary, PTO-413                     |
| <input checked="" type="checkbox"/> Notice of Reference(s) Cited, PTO-892                                | <input type="checkbox"/> Notice of Informal Patent Application, PTO-152 |
| <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review, PTO-948                         | <input type="checkbox"/> Other _____                                    |

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**DETAILED ACTION**

1. Amendment A, filed 24 June 1999, has been entered.

***Election/Restriction***

2. Newly submitted claim 31 is directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Inventions of Group I, claims 1-6, and 20-30, and Group IV, claim 31 are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the product as claimed can be made by another and materially different process. For example, the product as claimed can be made by providing a substrate; applying a thin film of an electrically conductive; applying a thin film of phosphor particles; applying a second thin film of an electrically conductive emitting material to form an electroluminescent display, as an alternative to forming a display having an anode and a cathode.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claim 31 is withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

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***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 5, 20, and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Referring to claim 5, the double inclusion of the same element is generally not permitted.

Note that the limitation “a collection of particles,” has been recited in the base claim 1.

Consequently, it is unclear as to whether the applicant is intending to claim a second collection or the collection having a narrower range.

Similarly, and referring to claim 20, the double inclusion of the same element is generally not permitted. Note that the limitation “a collection of particles,” has been recited in the base claim 1. Consequently, it is unclear as to whether the applicant is intending to claim a plurality of collections or a plethora of collections.

Referring to claim 26, it is unclear as to how the display can comprise a EL display. That is to say, the subject claim can be construed to require the display to include an EL display. Here it is assumed that the applicant intended to claim a display wherein the device is an EL display.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1, 4, 5, 6, 20-25, and 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jaskie. Referring to claims 1, 4, and 5, Jaskie discloses a display (see FIG. 5) comprising phosphor particles (fluorescent layer 53) having an average diameter less than 100 nm (see abstract, 10 nm particles) wherein the particle size is selected to yield light in a desirable portion of the spectrum. Jaskie is silent as to the particular range of phosphor particles. Jaskie teaches, however, that the specification of a desired particle range is within the skill of the art. See col. 7, lines 34-40. It would have been obvious to specify a desired particle range because the specification of a desired particle range is generally recognized to be within the skill of the art.

Still referring to claims 1, 4, and 5, substituting an average diameter of 5 nm as recited in claim 4, into the narrower range of particle sizes as recited in claim 5, yields a range of particle

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sizes of from 3 to 7 nm. Now referring to column 6, lines 46-49, Jaskie teaches that yellow light is produced from particles having a size of approximately 5 nm. Jaskie further teaches that the energy of a photon is inversely proportional to wavelength (col. 1, line 52-55), and inversely proportional to the size of the phosphor particle (col. 4, line 40-44). Taking yellow light to be the band from 597 to 577 nm and using the equations provided in column 1, line 52-55, and column 4, line 40-44 yields the yellow phosphor having the size from 5.04 to 4.95 nm, i.e., approximately 5 nm, as disclosed by Jaskie. Similarly, substituting the wavelength range of visible light from 400 to 800 nm, yield a particle distribution of from 4.14 to 5.84 nm, which is within the claimed range from 3 to 7 nm. Consequently, it is the position of the examiner that it would have been obvious to one skilled in the art that the presently claimed range of sizes reads on the teachings of Jaskie.

Referring to claim 6, see col. 8, lines 19-28, FED.

Referring to claims 20, and 21, FED displays conventionally include a plurality of phosphors for generating red, blue, green light (see for example Clerc, FIG. 6, RGB phosphors 28), and anodes 28.

Referring to claims 22, 23, see col. 1, line 26; FIG. 5, faceplate 52.

Claim 24, and 27 are rejected for the same reason as claim 21.

Referring to claim 25, see FIG. 4, focus grid 59.

Claim 28 is rejected for the same reason as claims 20, 21.

Referring to claim 29, see FIG. 2, and col. 6, line 48.

Claim 30 is rejected for the same reason as claim 6.

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7. Claims 2, 3, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jaskie in view of Bhargava. Referring to claims 2, and 3, the selection of known materials for a known purpose is generally considered to be within the skill of the art. Bhargava teaches that ZnO (group II-VI, semiconductor), ZnS, and Y<sub>2</sub>O<sub>3</sub> (see col. 2, lines 4-32), are all suitable for quantum contained phosphors, such as desired by Jaskie. It would have been obvious to select ZnO, ZnS, and Y<sub>2</sub>O<sub>3</sub>, phosphors as disclosed by Bhargava, in the display, as disclosed by Jaskie, because the selection of known materials for a known purpose is within the skill of the art.

Referring to claim 26, Jaskie does not disclose an EL display. Bhargava teaches that quantum confined phosphors provide EL displays (see FIG. 15) with higher efficiency (see col. 9, lines 46-67). It would have been obvious to include the quantum confined phosphors, as disclosed by Jaskie, in the EL display, as disclosed by Bhargava, for higher efficiency.

*Response to Arguments*

8. Applicant's arguments, filed 24 June 1999, have been fully considered but they are not persuasive.

9. Referring to the top of page 5 of amendment A, filed 24 June 1999, the applicant alleges Jaskie does not suggest the presently claimed "narrow" range of particle size. The examiner respectfully disagrees. As described in the rejection of claim 1, supra, substituting an average

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diameter of 5 nm, into the narrower range of particle sizes as recited in claim 5, yields a claimed range of particle sizes of from 3 to 7 nm. Jaskie suggest, however, that phosphors capable of admitting visible light from 400 to 800 nm would require a particle distribution of from 4.14 to 5.84 nm which is well within the presently claimed "narrow" range.

10. Referring to the bottom of page 5 of amendment A, the applicant alleges that there is absolutely no reason to expect the method of particle separation, as disclosed by Jaskie in column 7, lines 34-40, to work, and is at best highly speculative. The Examiner respectfully disagrees. There is a substantial presumption of validity of U.S. patents. The mere allegation of invalidity of a U.S. patent, without substantive evidence, is insufficient to defeat the presumption of validity.

11. Referring to the first full paragraph on page 6, the applicant allege that they do not believe that obtaining such a "narrow" range of particle sizes to be within the skill of the art. The examiner respectfully disagrees for reasons of record.

### *Conclusion*

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Day whose telephone number is 703/305-4941. The examiner can normally be reached on Monday-Friday, from 8:00 A.M. to 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar Patel, can be reached by phoning 703/305-4794. The Fax phone number is 703/308-7382.

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Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is 703/308-0956.

July 10, 1999



MICHAEL DAY  
PATENT EXAMINER  
GROUP 2800